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AUTHOR Berney, Tomi D.; Carey, Cecilia
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ABSTRACT

The Computer-Assisted Bilingual/Bicultural Multiskills Project completed its first year of an extension grant. The program used computerized and non-computerized instruction to help 109 native speakers of Haitian Creole/French and Spanish, most of whom were recent immigrants, develop English-as-a-Second-Language (ESL) native language, and content area skills for mainstreaming and continued academic success. Analysis of student achievement data indicate that the program met its objectives in ESL, native language arts, the content areas (biology, social studies, mathematics, American government, and United States history), and attendance. Staff development activities were offered. Parent involvement activities were also offered but received little response. It is recommended that the progam provide transportation and child care for parents who are members of the parent advisory commmittee in order to increase committee participation. (MSE)

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EVALUATION SECTION
John Schoener, Chief Administrator
June 1989

EVALUATION SECTION REPORT

COMPUTER-ASSISTED BILINGUAL/BICULTURAL MULTISKILLS PROJECT 1987-1988

Prepared by
The Bilingual Education Evaluation Unit
Tomi D. Berney, Unit Manager
Cecilia Carey, Evaluation Consultant

New York City Public Schools
Office of Research, Evaluation, and Assessment
Robert Tobias, Director

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5/22/89

COMPUTER-ASSISTED BILINGUAL/BICULTURAL MULTISKILLS PROJECT*
1987-88

SUMMARY

- The Computer-Assisted Bilingual/Bicultural Multiskills project was fully implemented in 1987-88. Participating students received instruction in English as a Second Language (E.S.L.), native language arts (N.L.A.), and content area subjects. The project also held staff development and parental participatory activities.

- The project met the program objectives in E.S.L., N.L.A., and the content areas as well as in student attendance.

Jamaica High School's Computer-Assisted Bilingual/Bicultural Multiskills project completed its first year of an extension grant of Title VII funding. The project used computerized and noncomputerized instruction to help 109 native speakers of Haitian Creole/French and Spanish, most of whom were recent immigrants to the United States, develop their English-language, native-language, and content area skills. The goal was to help these limited English proficient (LEP) students participate successfully in Jamaica High School's mainstream program and then go on to college, trade school, or the job market.

Title VII funded the project's two bilingual resource teachers, a part-time technical support computer aide, and a secretary. The chairperson of the school's foreign languages department served as project director.

The Language Assessment Battery (LAB) assessed the development of English language skills; teacher-made tests assessed mastery of native language skills and content area subjects. Program and school records provided data to measure and compare attendance rates. Analysis of student achievement data indicated that students made significant gains in English language skills and N.L.A. courses; they achieved passing rates as high as those of mainstream students in science and mathematics in the fall, and in math, science, and social studies in the spring. Their passing rates in mathematics exceeded those of last year when mainstream students exhibited higher rates in that subject area. Program students also maintained an

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*This summary is based on the final evaluation of the "Computer-Assisted Bilingual/Bicultural Multiskills Project 1987-88" prepared by the OREA Bilingual Education Evaluation Unit.

attendance rate equal to or greater than that of mainstream students.

Following a recommendation made by OREA in 1986-87, the project offered staff development in teaching content area classes to LEP students. Parental participation was low, in fact, lower than it had been the previous year. This was in spite of the fact that the program did make activities available to the parents and publicized them to the parents.

The conclusions, based on the findings of this evaluation, lead to the following recommendation:

- Provide transportation and child care for parents who are members of the parent advisory committee in order to increase committee participation.

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TABLE OF CONTENTS

		PAGE
I.	INTRODUCTION	1
	Overview	1
	Organizational Structure	1
	Staff	2
	Student Characteristics	2
	Student Placement, Programming, and Mainstreaming	5
II.	EVALUATION FINDINGS	7
	Instructional Activities	7
	English as a Second Language	7
	Native Language Arts	9
	Content Area Subjects	11
	Noninstructional Activities	14
	Attendance	14
	Academic Advisement and Career Planning	16
	Staff Development	17
	Curriculum Development	18
	Parental Involvement	18
III.	CONCLUSIONS AND RECOMMENDATIONS	20

LIST OF TABLES

		PAGE
TABLE 1:	Number of Program Students by Age and Grade	4
TABLE 2:	Pretest/Posttest N.C.E. Differences on the Language Assessment Battery, by Grade	10
TABLE 3:	Passing Rates in Native Language Arts Courses	12
TABLE 4:	Passing Rates for Program and Mainstream Students in Content Area Courses	15

I. INTRODUCTION

OVERVIEW

Jamaica High School's Computer-Assisted Bilingual/ Bicultural Multiskills project completed its first year of an extension grant. The main goals of the project were to improve students' English and native language skills. This was to be achieved by integrating computers into the instructional program. Other goals of the project were to improve students' self-image, introduce a career-awareness component linking classwork with the job market, train school staff in the use of microcomputers for LEP pupils, and plan parent workshops on computer use for parents.

Jamaica High School was located in a residential neighborhood, two blocks north of the depressed "downtown" section of Jamaica.

ORGANIZATIONAL STRUCTURE

The program was centralized and the project director (who was also the assistant principal [A.P.] of foreign languages) supervised all instructional personnel. The project director was responsible to the school's principal. The principal supported the program and worked closely with his staff in planning meetings, workshops, conventions, and conferences, and in developing curricula.

STAFF

Title VII provided funds for the bilingual resource teachers (Spanish and Haitian Creole/French), a part-time technical support aide, and a secretary. Tax-levy or Pupils with Compensatory Educational Needs (P.C.E.N.) provided funds for the project director, bilingual guidance counselor, grade advisor, instructional staff, and two paraprofessionals.

The project director devoted 40 percent of her time to the program, supervising the project's staff and handling the administrative work for the program. She also taught one class and was chairperson of the foreign languages department. The project director had 23 years of experience and was fluent in Spanish, Italian, and English.

The computer technician was a computer science major at York College and bilingual in Spanish and English. Aside from his main role of creating new programs for computer-assisted instruction, he also assisted in the purchase of programs and helped with any problems with the computer hardware and software.

STUDENT CHARACTERISTICS

This year the program served a total of 109 students. Most of the students (76 percent) were in the program for the first year. Sixteen percent completed their second year and eight percent their third. Almost 47 percent were born in Haiti and spoke Haitian Creole; almost 50 percent were from Spanish-speaking countries in the Caribbean and Central and South

America. The remainder were from other French and Spanish-speaking countries and Brazil.

Most program students were in the tenth and eleventh grades. (See Table 1.) Most were recent immigrants from rural areas where access to formal education was limited. Sixty percent of the students were overage for their grade placement.

Eighty-two percent of the students had two or fewer years of education in the United States indicating that, overall, most were relatively new to the school system. They lacked basic study skills and were unfamiliar with the New York City public schools' "rules of behavior."

Many Haitian students entered the program with some knowledge of English because they had taken English courses in Haiti. Many of their parents also spoke English since they had been living in the U.S. for some time, often for a longer period of time than their children.

Students' socioeconomic level was low. Some needed to work after school, which affected their attendance and/or their ability to concentrate in class. An English as a Second Language (E.S.L.) part-time co-op school helped students get jobs where they utilized the skills they learned in their classes.

TABLE 1

Number of Program Students by Age and Grade

Age	Grade 9	Grade 10	Grade 11	Grade 12	TOTAL
13	1	0	0	0	1
14	2	0	0	0	2
15	11	3	1	0	15
16	7	8	5	0	20
17	3	13	11	0	27
18	0	9	5	0	14
19	0	6	12	2	20
20	0	0	3	2	5
21	0	1	0	1	2
TOTAL	24	39	38	5	106[a]
Overage Students					
Number	10	28	21	5	64
Percent	41.7	71.8	55.3	100.0	60.4

Note: Shaded boxes indicate expected age range for grade.

[a]Data were missing for three students.

- The majority of students were in grades ten and 11.
- Sixty percent of program students were overage for their grade placement.

STUDENT PLACEMENT, PROGRAMMING, AND MAINSTREAMING

Scores on the Language Assessment Battery* (LAB) test, personal interviews by the grade advisor, guidance staff, and project director determined whether students were appropriate candidates for the project.

A main objective of the program was to successfully mainstream its students at the appropriate time. The emphasis on mainstreaming was to make sure the student would be able to adapt and learn successfully in a monolingual English school environment. After students were mainstreamed, they checked periodically with the project director to let her know how they were doing. They also maintained a close relationship with their former resource room teachers who acted as a source of advice, support, and information. The project encouraged mainstreamed students to use the resource room computer equipment, mathematics and English programs, as well as to see the bilingual guidance counselor for counseling. Teachers used a mainstream progress report form, designed by project staff, to assess students' strengths and weaknesses in mainstream classes. It served as a guide in developing customized computer software and educational plans. According to project personnel, once

*The Language Assessment Battery (LAB) was developed by the Board of Education of the City of New York to measure the English-language proficiency of nonnative speakers of English in order to determine if their level of English proficiency is sufficient to enable them to participate effectively in classes taught in English. Students scoring below the twenty-first percentile on the LAB are entitled to bilingual and E.S.L. services.

students were mainstreamed, they did as well as mainstream students.

II. EVALUATION FINDINGS

The Office of Research, Evaluation, and Assessment (OREA) analyzed student achievement data, interviewed school and project personnel, observed classes, and examined program records in its evaluation of the project.

INSTRUCTIONAL ACTIVITIES

The project proposed instructional objectives in E.S.L., N.L.A., and the content area subjects of mathematics, science, and social studies.

English as a Second Language

- As a result of participating in the program students will make statistically significant gains in English language proficiency.

Implementation. E.S.L. students at the beginning and intermediate levels received three periods of E.S.L. classroom instruction and one period of computer-assisted instruction per day; advanced students received two periods of E.S.L. classroom instruction and one period of computer-assisted instruction. Placement in E.S.L. classes was based on the student's level of proficiency as measured by the LAB examination and on staff recommendations.

An OREA field consultant observed an advanced E.S.L. class. A class of six, in a spacious, well-decorated room, watched a video of the movie "Jane Eyre" as a complement to the first half of the book that they had already read. A discussion of the

story followed and the teacher gave the students a homework assignment as a follow-up. Most of the students participated in the class discussion.

A field consultant also observed a beginning-level E.S.L. class in the computer resource room. The aim of the lesson was to practice reading comprehension by using a computer. Students worked in teams of two, answering questions about several stories and doing spelling and verb review exercises. The teacher, members of the computer technical support team, and a paraprofessional gave the students individualized instruction while they worked. The students were very involved in the lesson and asked many questions.

Outcomes. To assess students' achievement in English reading, the OREA data analyst computed a correlated *t*-test on students' LAB N.C.E. scores.* The *t*-test determined whether the difference between pretest and posttest mean scores was significantly greater than would be expected from chance variation alone.

The project provided complete LAB pretest and posttest N.C.E. scores for 56 students. In grades nine, ten, eleven, and overall, students achieved significant ($p < .05$) gains in English proficiency as measured by LAB scores, thus meeting the proposed

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*Raw scores were converted to Normal Curve Equivalent (N.C.E.) scores, which are normalized standard scores. They have the advantage of forming an equal interval scale so that scores and gains can be averaged. For the norming population, N.C.E.s have a mean of 50, a standard deviation of approximately 20, and a range from 1 to 99. Thus, scores can be compared to the norming population.

objective. (See Table 2.) As there were only three twelfth-grade students, the lack of significance in the difference between their pre- and posttest scores was 7.9 N.C.E.s. The overall effect size was medium, indicating a moderate amount of educational meaningfulness in the pretest/posttest differences.

To support further the contention that students increased their English language skills, OREA examined E.S.L. class grades. In the fall semester, 84.5 percent of 84 students passed their E.S.L. classes; and in the spring semester, 78 percent of 91 students passed.

Native Language Arts

- As a result of participating in the project, at least 75 percent of the students will score at or above the 65 percent passing criterion in native language arts classes (Spanish and Haitian Creole/French) each semester/year.

Implementation. Jamaica High School offered five Spanish classes for both project and mainstream students each semester. In the fall it provided five French classes, including an Advanced Placement class; in the spring it offered four. Only project students enrolled in the two lowest levels.

In a level 3 Spanish class observed by an OREA field consultant, the teacher asked the students to read a sentence in Spanish from the textbook and then wrote it on the board. She asked the students to rewrite phrases to make them negative. She then wrote a list of words on the board and asked for a

TABLE 2

Pretest/Posttest N.C.E. Differences on the Language Assessment Battery, by Grade

Grade	Number of Students	Pretest Mean	Pretest S.D.	Posttest Mean	Posttest S.D.	Difference Mean	Difference S.D.	t Value	Effect Size
9	9	16.6	18.9	21.7	20.9	6.1	8.4	2.18*	0.73
10	20	10.8	9.2	21.4	17.3	13.6	13.5	4.51*	1.01
11	24	13.5	8.7	18.2	13.1	4.6	9.2	2.45*	0.50
12	3	22.3	6.5	24.3	9.5	2.0	8.7	0.40	0.23
TOTAL	56	13.5	11.0	21.4	15.8	7.9	11.4	5.19*	0.69

*$p < .05$

10

- Ninth, tenth, and eleventh graders and the group as a whole made significant gains on the LAB, indicating that the project met its E.S.L. objective.

definition of each. In the next part of the lesson, the teacher read a story from the textbook and analyzed each main point, relating it to the students' lives. The students participated in all aspects of the lesson.

In a French class observed by a field consultant, the students read from the text. The teacher had students repeat the mistakes they had made and then repeat the correct answer. The class was frequently disruptive but actively participated in the lesson.

Outcomes. The project achieved its objective that 75 percent of the students would pass their N.L.A. courses. (See Table 3.) More than 75 percent of both Spanish- and French-speaking students passed their N.L.A. courses in the fall and spring.

Content Area Subjects

- As a result of participating in the project, the percentage of students at or above the 65 percent passing criterion in substantive subjects will be as high as that of mainstream students.

Implementation. The project offered one bilingual (Spanish) general biology and one (Spanish) global social studies class both semesters. It also offered classes in fundamentals of mathematics, life science, American government, and American history in English using an E.S.L. approach.

Bilingual classes used Spanish except for the introduction

TABLE 3

Passing Rates in Native Language Arts Courses

	Fall		Spring	
	Number of Students	Percent Passing	Number of Students	Percent Passing
French	38	78.9	35	94.2
Spanish	39	84.6	40	80.0
TOTAL	77	81.8	75	86.6

- More than 75 percent of the participating students passed N.L.A. courses in both semesters.

of important terms and for summaries. Bilingual teachers encouraged students to do their homework in English and to try to answer questions in English.

The curricula of the English-language content area classes paralleled those of mainstream classes; a teacher reported that the only difference was in the amount of time spent in explaining new terms and vocabulary.

An OREA field consultant observed an American history class. The theme for the lesson was, "Was Lincoln right in bringing the nation to civil war?" The teacher used a map of the United States throughout the lesson. She asked a question about a state declaring itself independent and related it to the anti-colonial struggles in the students' own countries. She then proceeded to write the answers on the board. About one-third of the students participated in the discussion.

Outcomes. OREA analysts determined the statistical significance of the difference between the passing rates of program and mainstream students through a z-test for the significance of the difference between two proportions.* This procedure tests whether the difference in the rates of two independent groups is greater than can be expected from chance variation.

The program met its objective in science and mathematics in the fall, and in social studies, science, and mathematics in the

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*Bruning, J.L. and Kintz, B.L. Computational Handbook of Statistics (Glenview, IL: Scott, Foresman and Company, 1968).

spring. (See Table 4.) During both semesters, project students' passing rates in science were significantly higher ($p < .05$) than those of mainstream students. In mathematics there was no significant difference in the passing rates of program and mainstream students, and in social studies the difference was significant only in the spring semester. Since the objective proposed that program students' passing rates would be as high as those of mainstream students, the project met its content area subject objective.

NONINSTRUCTIONAL ACTIVITIES

Attendance

- As a result of participating in this project, students will maintain an attendance rate that is equal to or greater than the attendance rate of mainstream students.

Data analysts determined the statistical significance of the difference between program and mainstream attendance rates by using a *z*-test for the significance between two proportions. The mean attendance rate of program students was 96.7 percent in the fall and 94 percent in the spring, about ten percentage points higher than the school's overall attendance rate. The *z*-test results indicated that the difference between the two attendance rates was statistically significant ($p < .05$). Thus the program achieved its attendance objective.

TABLE 4

Passing Rates for Program and Mainstream Students in Content Area Courses

COURSE	Bilingual Program		Mainstream Classes		
	Number of Students	Percent Passing	Number of Students	Percent Passing	z-test Value
			FALL		
Math	46	70.3	836	60.8	1.3
Science	107	87.8	1,475	76.0	2.9*
Social Studies	123	64.2	792	73.6	-2.4
TOTAL	276		3,106	71.0	
			SPRING		
Math	100	64.0	488	57.4	1.3
Science	135	97.0	527	75.2	5.9*
Social Studies	111	94.6	672	75.4	4.7*
TOTAL	346	87.6	1,687	66.8	

Source: Course passing data provided by project director.

*$p < .05$

- In the fall, the proportion of project students passing mathematics and science courses was at least as high as the proportion of mainstream students.
- In the spring, the proportion of project participants passing mathematics, science, and social studies was at least as high as the proportion of mainstream students.

Academic Advisement and Career Planning

While the Computer-Assisted Bilingual/Bicultural Multiskills project proposed no objective in the area of academic advisement and career planning, it did provide services in those areas to participating students. Each semester, project students met with the bilingual guidance counselor, E.S.L. coordinator, project director, and resource teachers for academic advisement and career planning. This was done on an individual, small-group, or large-group basis. Students also met with program staff three times a semester to discuss a wide range of topics including review of report card grades; school/class attendance; program/college planning; tutoring assignments; and utilization of Metroguide and Career Scan, two computerized college and career systems.

The project had vocational training and career education as a major thrust. Since its third year of operation, Title VII students had held jobs in neighborhood and school offices, enabling them to use their bilingual business and academic skills in applied settings. E.S.L. keyboarding classes, the computer lab, and several other career-oriented curricular and extracurricular activities allowed students to acquire additional job-related skills. In conjunction with the Cooperative Education Program, the E.S.L. teacher worked one period per day placing students in part-time jobs.

Each semester, ten program students enrolled in a Careers in Education class that originally had been designed for mainstream

students. They learned to use simple business machines and also worked with the bilingual (Spanish/English) teacher on career planning.

Staff Development

The project set no staff development objectives for 1987-88. A significant amount of staff development did take place during the year, however. Title VII, foreign language, and E.S.L. teaching staffs met monthly to review student progress, evaluate curricula, and monitor project goals. Staff received training in the philosophy and techniques of bilingual education and method of integrating computers into the bilingual instructional program, both at the school and at workshops and conferences held outside school.

As recommended in last year's report, staff received training in teaching content area classes to LEP students. Program personnel attended workshops on E.S.L. math teaching techniques, one in-house and one at Hunter College Mutifunctional Resource Center. Staff members attended workshops at the Museum of Modern Art, Columbia University's Teachers College, the annual convention of the New York State Teachers of American Foreign Language Teachers, and an American Association of Teachers of Spanish conference on "New Directions in Teaching the N.L.A. Student." Teachers continued their training in computers through a workshop at the Queens Superintendent's Office on computer-managed instruction for LEP students.

Curriculum Development

The project set no objectives in curriculum development. However, by the end of the fourth year, the project created curricula in all five levels of Spanish and Haitian Creole/French N.L.A. Project staff produced original or adapted materials in bilingual science, global studies, E.S.L., American history, E.S.L. keyboarding, and mathematics. This year, the computer technician continued to develop programs to meet the students' needs.

Parental Involvement

While there were no program objectives, project parents participated in the program in several ways. A maximum of seven parents attended the seven advisory committee meetings that were held during 1987-88. Since attendance at these meetings was low, some committee members suggested hiring a minibus to transport parents to the school and to provide child care at the school as a way to increase parent participation.

Parents on the advisory committee accompanied students on project and school trips. According to the project director, a large number of project parents attended the school's International Night. Fifty parents attended the parent-teacher conference held each semester. According to project staff members, although program parents' level of participation in school affairs was not high, it was higher than that of mainstream parents.

The project staff notified parents about their children's

progress and attendance six times during the school year. The school and project notified parents about schoolwide and project activities.

III. CONCLUSIONS AND RECOMMENDATIONS

In its extension year after a three-year grant, Jamaica High School's Computer-Assisted Bilingual/Bicultural Multiskills Project used computerized and noncomputerized instruction to help Spanish- and Haitian Creole/French-speaking LEP students develop their English language, native language, and content area skills.

Career-planning, tutoring, and extracurricular activities for students were important complements to the project's instructional component. Curriculum development and staff development activities, involving Title VII staff, and foreign language and E.S.L. teachers, were equally important components of the project.

In 1987-88, the program successfully met its instructional and noninstructional objectives in E.S.L., N.L.A., content area subjects (except social studies one semester), and attendance. Project students' passing rates in mathematics improved from the previous year, when they were lower than those of mainstream students.

Of the 15 program students who graduated from Jamaica High School during the year, four went to a four-year college, nine to a two-year college, and two found employment. Three students won awards at graduation. Seven program students received awards from the Société des Professeurs Français en Amerique. In addition, of the nine students who took the French Advanced

Placement exam, seven got a perfect score, an outstanding accomplishment. Finally, Pace University invited two project students to attend the school during the summer of 1988 to take special mathematics courses that carried college credits.

As recommended in last year's report, the project offered staff development in teaching content area classes to LEP students. Parent attendance at advisory committee meetings was lower than it had been the previous year. The principal of Jamaica High School was receptive to the recommendations of some members of the advisory committee to hire a minibus to transport parents to the school and to provide child care at the school. Staff members plan to follow up on these ideas in 1988-89. The project director made every effort to absorb the project's services for the academic year 1988-89 into the school's bilingual and E.S.L. curriculum. For example, the school will continue to hold computer instruction classes in the resource room, the native language and content area classes will continue, and not only will Jamaica High School offer the French advanced placement class, but will also offer a Spanish advanced placement class.

The conclusions, based on the findings of this evaluation, lead to the following recommendation:

- Provide transportation and child care for parents who are members of the parent advisory committee in order to increase committee participation.